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REPORT

ON THE

NEW OR FIFTH DECENNIAL REVISION OF THE UNITED STATES PHARMACOPŒIA,

TO THE

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

APR 7 1884

BY

EDWARD R. SQUIBB, M. D.,

[*REPRINTED FROM THE NEW YORK MEDICAL JOURNAL, APRIL*, 1873.]

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REPORT

ON THE

NEW OR FIFTH DECENNIAL REVISION OF THE UNITED STATES PHARMACOPŒIA.[1]

To the Medical Society of the State of New York:

As chairman of the delegation sent to represent this Society in the Decennial Convention for the revision and publication of the U. S. Pharmacopœia—which convention met in Washington, in May, 1870—it now becomes the duty of the undersigned to report that the revision and publication of the U. S. Pharmacopœia have been completed; and to present a copy of this new fifth revision to the Society for preservation in its library.

In presenting the completed work, it may be useful to the Society, and is necessary to the writer as one of the Society's representatives in the matter, to direct attention to some prominent points in the new Pharmacopœia, and to ask the earnest, thoughtful attention of the profession to this important subject. If the medical profession does not advance with the rapid progress of other departments of human knowledge and skill, its useful results will be proportionately small, its influence

[1] Read before the Medical Society of the State of New York, February 5, 1873.

for good will be more and more weakened, and its ranks be more and more demoralized by error and schism. In its struggle for life, inherent strength alone can secure the "survival of the fittest." In order to advance with the rapid progress of other knowledge, it must adopt all the means necessary to that end, and therefore must attain a much higher degree of accuracy in observation and research, as well in the objective as in the subjective branches of medical science.

Medical science, as a department of physical science, is thoroughly objective in its character, and very simple and direct in its design, and is of established value and importance; and, if physicians would but take the example of other physicists in the precision and accuracy of their investigations, their ranks would become more orderly and compact as their results became more definite and certain. The element of primary importance to accuracy in observation and research is quality, or greatest attainable perfection in the instruments of investigation. The telescope and spectroscope, the galvanic battery, and the lever and axle to other physicists, fairly represent the materia medica to the physician. And, if the materia medica be not improved in accuracy, precision, and uniformity, as the telescope, spectroscope, and microscope are, the observations made through its agency must continue to be indefinite and uncertain from this cause, and can never rise to the dignity or utility of accurate research.

The new Pharmacopœia having been received within the two weeks just past (February 1, 1873), your reporter can offer but an imperfect and hasty review of it. Nothing can be said as the result of trial and experience of its new processes, and all that is here written is offered as the mere individual judgment of the writer, made up somewhat hastily, but not carelessly. Where this judgment is at variance with that of the Committee of Final Revision and Publication—a numerous committee whose high character is well known—the writer is fully sensible of the weight against him, and of the well-earned advantage such a committee must always have in the minds of careful readers.

In making a report at this time, rather than at the annual meeting a year hence, only a few prominent points can be

touched upon in detail; but, it is hoped that even this may not be without use in awakening a new interest in the materia medica, and in attracting special attention to the new Pharmacopœia.

The mechanical execution of the book leaves nothing to be desired. The paper, type, printing, and binding, are highly creditable, both to the committee and to the publishers, and partly justify the increased cost of the book. Both the book and the printed page are slightly larger than the last, but, the type being smaller, though perhaps equally clear, the pages contain very much more matter. Hence, the book with some one hundred and nine additional articles, and twelve dismissed, is still sixteen pages less than the last, or the difference between 383 and 399 pages. The work of the publishers' proof-reader is well done, only one single typographical error having been noticed—namely, on page 125, where "platinum oil" is printed for "platinum foil."

As the convention did not at its last session, as it did at the previous one, direct that the copyright revenue be expended in cheapening the book to the public, but directed that the expenses of the committee should be paid from it, the public has now a better book. It is highly probable that the income from the copyright of the Pharmacopœia might be greatly increased by offering it to the competition of several publishing houses, and all the income which could be thus obtained might be most wisely expended upon—and would most likely pay for—all the expert labor involved in the work. When your reporter served as your representative in this committee in 1860, several respectable New York publishing houses applied to him to have the copyright opened to competition, and given to the highest bidder, and your reporter urged upon that committee both the propriety and justice of this course; but the proposition met with neither favor nor support, and was promptly voted down. The committee, however, decided to seek some information from the publishers bearing upon the value of the copyright; but the publishers declined to furnish the information, because it was connected with their business affairs, and the committee was satisfied with this refusal. It was because of such action as this

being not infrequent during the two years' deliberations of that committee—and not from an indisposition to work, and to tell freely all he knew, and to travel a hundred and eighty miles a week to do it—that your reporter persisted in refusing to serve upon the present committee—the committee being substantially the same as the preceding one.

The Pharmacopœia begins with the "Proceedings of the Convention of 1870 for revising the Pharmacopœia. Fifth Decennial Revision." And there is no improvement in the meagre and insufficient abstract of the proceedings of this convention which gives to the work its organic existence and authority. In order that this feature might be improved, the convention directed its secretary to employ a stenographer; but the secretary reported that a stenographer could not be had in Washington at that time. The "Proceedings," however, could have been much improved without a stenographer, if only by the publication of the Report of the Committee of Revision and Publication for 1860—short and meagre as this was for so important a work. In the "Proceedings" it will be seen that the convention discussed the general principles, and adopted a general plan, for the new Pharmacopœia, and then, as usual, appointed a Committee of Final Revision and Publication to carry out the plan thus adopted. Among the resolutions which form this plan for the new Pharmacopœia, as adopted by the convention, for the governance of its Committee of Final Revision and Publication, is the following:

"*Resolved*, That measures of capacity be abandoned in the Pharmacopœia, and that the quantities in all formulas be expressed both in weights and in parts by weight."

This resolution, with the others which constitute the plan of the convention, was brought in by a committee of five prominent delegates, and was drawn up in the interest of an important degree of progress in precision and accuracy, which had already been attained in the same way by other national Pharmacopœias. The resolution was freely discussed by the convention, and the practical difficulties, and the labor involved in carrying it out, were fairly pointed out and urged, and were fully considered, and the convention deliberately decided that the advantages to be gained in accuracy and precision would

be a true progress, and worth the labor involved; and, after this full discussion, the resolution was adopted by the convention.

This action of the convention was considered by the writer, and by others familiar with the subject, as one of the most important steps that could be taken in a general plan to bring the Pharmacopœia up to the date of its revision; and accordingly, when the new issue appeared, this improvement was looked for, but looked for in vain, for the measures of capacity and the weights of the old issue were found unchanged.

The reasons why the Committee of Final Revision and Publication refused to carry out the directions of the convention in this resolution are given in the preface of the Pharmacopœia as follows:

"To execute such directions, entails the use of a metrical system not employed in this country or in England, and which would have to be constructed for the purpose. Such a change would involve changed proportions in almost every formula, and would produce a corresponding disturbance in many of the doses. Moreover, such directions were not anticipated in any of the revisions handed to the committee; and to institute such extended experiment as would cover the whole ground of the directions of the Pharmacopœia, would entail so much expenditure of time, labor, and cost as to render the plan impracticable. This view of the question was unanimously taken by the committee at a meeting consisting of ten members."

These reasons will have more or less weight as they may be viewed by different persons from different points of view. But, how any reasons whatever, can justify a committee in refusing to carry out the deliberate directions of the superior authority by which the committee was created, must be generally difficult to comprehend.

To the perhaps prejudiced judgment of the writer the reasons given appear to be those of a committee which did not like labor, and therefore refused it upon whatever pretext could be found. This, however, fails to account for the action of the committee when it is considered that the time and labor involved were mainly of a mechanical and clerical nature,

and might have been hired for the purpose, since the holew value of the copyright of the Pharmacopœia was available, by-authority of the convention, to satisfy the cost of revision; the committee-men in this, as in all past revisions, generously contributing their own time and labor entirely without cost to the work.

This much-needed and expected improvement in the national Pharmacopœia is, therefore, lost for the next ten years, unless the committee should see fit to avail itself of the authority given by the convention to issue another revision prior to that of 1880.

The Preface is well and forcibly written, and gives a concise account of the prominent features of this revision. The following admirable paragraph will, doubtless, commend itself to all:

"In accordance wlth the resolutions of the convention, the 'scope of the work has been extended rather than abridged;' and it has been the desire of the committee to adapt it to the wants of our extended country, without losing sight of the conservative character necessarily pertaining to a national Pharmacopœia. Such a work must necessarily follow in the wake of advancing knowledge; it is no part of its mission to lead in the paths of discovery. It should gather up and hoard for use what has been determined to be positive improvement, without pandering to fashion, or to doubtful novelties in pharmaceutical science."

It is, however, unfortunate that an important proportion of the present revision does not correspond to the precept so clearly set forth in this paragraph; as, for example, the introduction of glycerin into thirty-four of the forty-six fluid extracts.

In the summary account of the one hundred and nine additional articles introduced, an excellent opportunity for courtesy if not justice to the British Pharmacopœia was lost, since that standard has been so largely drawn upon by the committee as in some instances to follow its defects.

The Preface concludes with a very slight allusion to the amount and importance of the labors of the committee, which, though quite proper and entirely consistent with the high

character and good taste of the gentlemen concerned, conveys to the ordinary reader no just conception of either the character or the amount of work involved in the duties accepted by them in the interest of their professions.

The Preliminary Notices of the Pharmacopœia are found unchanged.

Under the caption of "Temperature," the term "gentle heat" is still defined, while the similar conventional terms "moderate heat," "regulated heat," etc., are still left without definition.

Under the caption "Stoppage of Bottles" it is still insisted that the words "well stopped" whenever they occur must be translated into "glass stopped;" a mode of expression which takes no more words than that for which it is substituted, while it is certainly more clear and definite. The whole force of this Preliminary Notice is that the words "well stopped" must be read "glass stopped" throughout the Pharmacopœia; but the committee itself seems to forget this, and directs two out of the three collodions p. 117, and all the tinctures p. 299, to be kept in "well-stopped" bottles. In the case of the collodions the direction is not simply unnecessary, but will commonly result in the gluing fast of the glass stopper.

The supposed defects of these two captions were brought to the notice of the committee, but without effecting a change.

Percolation, as described in the Preliminary Notices, is substantially unchanged, and the reader might infer that a lapse of ten years had left this important process without noticeable advancement. This, however, is not the true position of the committee, for, on referring to p. 151, a general formula for percolation in its application to the fluid extracts is found in detail. This formula is a modification of that published by Mr. Samuel Campbell, of Philadelphia, in the *American Journal of Pharmacy* for 1869, p. 385, and for 1870, p. 17. By this process Mr. Campbell claims that the medicinal properties of drugs can be practically extracted by a proportion of menstruum, or solvent, much smaller than that indicated by any previous experience. Hence this process attracted the immediate attention of many who were en-

gaged upon the important class of preparations to which it was applicable. The writer, among others, applied it with care, and with that prejudice which is apt to be excited by propositions which, by largely saving labor and expense of material, greatly increase pecuniary profits.

The process in the writer's hands was, however, not favorable in the character of the result. The exhaustions were found to be very inaccurate and imperfect, while these imperfections were often masked by the character of the menstruum employed, and by the deceptive appearances of richness of color and density in the products. Saving of labor and increase of profit naturally hide many defects, and the process soon became popular, though occasionally discredited by pharmacists whose closeness of observation entitled their judgment and their results to respect. This process of Mr. Campbell the committee has adopted, but with the important modification that, whereas Mr. Campbell claims to have his sixteen troy ounces of the drug fairly represented in the first sixteen fluidounces of percolate, and therefore percolates no farther, the committee continues the percolation to twenty-four fluidounces, and evaporates the ten fluidounces last received to two fluidounces, and adds this to the fourteen fluidounces first received. This is a most important advance upon Mr. Campbell's method, but yet, in the writer's experience and judgment, the committee's process is very inadequate, and does not represent the knowledge on this subject at the date of its action.

The Primary and Secondary Lists have been enriched by twenty-seven articles, and would not have been at all impoverished, to say the least, by the omission of an equal number, yet only five articles were dismissed. That view or plan of "extending rather than abridging the scope of the work" which forbids the dismissing of such articles as Absinthium, Allium, Althea, Cataria, Coccus, Hæmatoxylon, Matricaria, Salvia, Sambucus, Santalum, and Statice, from the Primary List, together with most of the articles of the Secondary List, does not seem to the writer to be in accordance with the condition of medical and pharmaceutical science at the date of this committee.

The committee of 1860 ventured so far as to dismiss thirteen of the ancient incompetents of the Secondary List; but the present committee, unable to withstand this sacrifice, have restored two articles then dismissed, as "Substances added to the Materia Medica of the Pharmacopœia." These are the Flesh-colored Asclepias, and the Syriac Asclepias. What these particular "milk-weeds" have done for the materia medica within the past ten years your reporter does not know. The only other addition to the Secondary List is Castanea. As far as the name is concerned, this also is a restoration. But, in reality, the Castanea dismissed by the committee of 1860 was the bark of the C. pumila or Chinquapin, while the Castanea now added is the leaf of the C. vesca, or common chestnut. This has, within the past ten years, been occasionally noticed as an efficient remedy in whooping-cough.

The other additions to these Lists, which are only restorations—or the undoing of what the former committee did—are the readmission of Cinchona, which was dismissed as a useless generic name, since all the useful varieties were separately described; the readmission of Conium Seed or fruit, which the committee of 1860 made a great blunder in dismissing; and the readmission of Origanum, which, if important now, this importance has escaped notice in the current literature of the past decade.

A very important advancement has been made by the committee in the direction of greater precision of language in the officinal description of drugs. What, at first sight, would appear to be but a mere change in the form of expression, or a mere multiplication of words, or technicalities, upon closer inspection exhibits a far deeper meaning, and will contribute much toward precision and accuracy. As an illustration of a change, which, though apparently trivial and useless, is yet not so in reality, the word "saturation" has, throughout the book, except in two or three instances, been changed for "neutralization." When it is remembered how the word "saturation" is now applied in chemistry, the change will not appear trivial. On the other hand, the word "sufficient" seems to have found an Anglo-Saxon disfavor that is really trivial. With the exception of a few instances, where the enemy must have

been napping, it is ruthlessly eliminated, in favor of the word "enough;" but this only in certain positions of the phraseology, for, in the expression "a sufficient quantity," which occurs so much more frequently, it triumphantly holds its place.

The descriptive notes of characteristics and tests, appended to the articles throughout the book, are much improved and extended, and those applying to articles newly introduced are as full and as effective as is practicable. The only serious error in these is under the article Acidum Carbolicum Impurum, p. 11. On next to the last line of the page it is stated that this substance "should not be soluble in less than 20 per cent. of water, thus indicating that it is not an alkaline solution of carbolic acid." This is probably intended to be Crooke's test, which is, in effect, that it should not be soluble in less than five times its volume of water. Besides the extension in both the definitions and notes, several errors of the previous Primary List are corrected in this new List.

At the outset of this Primary List is noticeable the most conspicuous and most general of all the changes made by this committee. This is the change in nomenclature which, as the Preface states, has been made "in order to place the work in accord with the progress of chemical science."

Here the effort to hold back, and to be conservative, and yet to go on a little, very carefully, seems to have led the committee into a jumble in which chemical science could see no accord. The frequent use, in the same paragraphs, of the old and new nomenclatures, often in their most abrupt contrasts, produces upon the writer the effect of a harsh discord, and must prove to be confusing to physicians and pharmacists; while to those familiar with the new nomenclature the effect must be absurd. This jumble, which pervades the whole book, has its culmination in such names as "Tartrate of Antimony and Potassium." Nowhere is true conservatism more valuable than in an authoritative standard which should govern the every-day practice of arts so important as medicine and pharmacy; and the frequent apparent success of ill-judged, half-way measures, adopted under the name of conservatism, shows how great a load of error can be carried by the little

giant truth. If this partial change proves to be an error of judgment of the committee, a weakening of the influence of the Pharmacopœia is to be feared as a consequence. Within the sphere of the Pharmacopœia, the new chemical nomenclature may be considered to be pretty well settled for the next decade, and it would have been a manly policy for progress, to have adopted it entirely until a better one might be developed. It has been well said that the workers in the fields of natural science must hold their facts and occupy their positions as the nomadic Arabs do their tents, in readiness to pick up and move on at any time; and, if this be true, it indicates that neither the new nomenclature nor any other can be stable for the future, and that the question of stability need not therefore have embarrassed the committee, to prevent it from taking an advanced position for its decade. On the other hand, the committee might—certainly with safety, and probably more wisely—have decided to retain the past nomenclature for another decade, until the committee's constituency might, from other sources, have become more familiar with that advanced knowledge of which the new nomenclature is but the natural language. But, to adopt neither, yet attempt both, impresses your reporter as a grave error of judgment.

After this great change in nomenclature, it seems puerile to refer to others which, but for this, would be very conspicuous. The words "folia" and "leaves," which ten years ago were changed to "folium" and "leaf," so as to be in harmonious uniformity with "radix," "root," "semen," "seed," etc., are now changed back again to the plural, while "almond," "cubeb," "fig," "nutmeg," "bone," "egg," "prune," etc., are retained in the singular. The words root and bark are omitted from the English translation of many of the officinal titles, and we now read "Quercus alba, white-oak. The inner bark of Quercus alba." "Rubus, blackberry. The bark of the root of Rubus Canadensis, and of Rubus villosus;" and "Apocynum cannabinum, Indian hemp. The root of Apocynum cannabinum." This brings them into harmonious accord or uniformity with "Cinchona," "Ipecacuanha," "Jalap," "Valerian," etc., but the changes do not appear to advantage when, in the subsequent formulas, we read, "Take

of Blackberry, in fine powder;" "Boil the White-oak," etc. In "Slippery-elm bark," however, the word "bark" is retained in the English name, probably through oversight. The change, or rather the exchange of the names of the officinal alums, seems to have been unnecessary, and, if so, is unfortunate and bad, since it introduces confusion while in no way promoting accuracy, and simply caters to a common usage which is based upon inaccuracy. The name alum was not commonly applied to any thing but potassa-alum until after ammonia-alum had been more cheaply made from gas-liquor. Potassa-alum has always been the type and file-leader of the class of alums, as ethylic alcohol is of the class of alcohols, until the committee degraded it and promoted its younger usurping competitor. Had the committee promoted fusel oil, or glycerin, to the name of "alcohol," and degraded ethylic alcohol to the ranks in chemistry, rating it by its chemical constitution simply, this would have been but an exaggerated instance of a similar change. All the past medical reputation of "alum" belongs properly to potassa-alum, the ammonia-alum being comparatively untried till introduced into the last British Pharmacopœia as "Alumen," to the exclusion of potassa-alum.

A general view of the next subdivision of the Pharmacopœia, and the most important part of it, namely, the "Preparations," shows it to be, except in the points already noticed, mainly unchanged. The same array of long and yet insufficient, and now also long obsolete, formulas for Calomel, Cinchonia, Quinia and Morphia salts, etc., is still found, though the advisability of transferring all such to the Materia Medica List, with appropriate descriptions and tests, has been long and earnestly urged by many competent judges here, and has been illustrated by the example of foreign Pharmacopœias. It is really very difficult to know where to draw the line between processes appropriate to practical pharmacy and those which are not; but it must be drawn somewhere by the authority of the Pharmacopœia, and to do this with the least practical inconsistency is what should be aimed at. Hypercriticism never ends, and can neither be well defined nor avoided; but, to refuse logical inferences, and resist reasonable conclusions on account of this, cannot be wise.

It is to be regretted that saffron, an excellent corrigent and stomachic, is omitted from such preparations as vinegar of opium, tincture of rhubarb and senna, and compound tincture of cinchona. The general appreciation of its value, in the latter preparation especially, will not be likely to support this change.

An error in the process for vinegar of squill, which was pointed out soon after the revision of 1860, and has been repeatedly noticed by various authorities since, remains uncorrected, although the process has been rewritten by this committee.

The process for purified chloroform has been rewritten and considerably changed, and the standard of purity has been lowered from "s. g. 1.490 to 1.494" to "1.480." Perhaps, all that the writer should say, in regard to this change, is to enter an earnest protest against lowering the standard; and that, from a considerable experience in the purification of chloroform, the old formula was a very good one, and the changes entirely unnecessary.

The officinal dried alum is now directed to be made from ammonia-alum; the maximum temperature is lowered from 450° to 400°; and the dried ammonia-alum is left with more water in it than the dried potassa-alum, formerly officinal. These changes are taken from the British Pharmacopœia, and therefore the committee adds that high authority to its own against the individual judgment of your reporter.

The process for benzoate of ammonia is taken nearly *verbatim* from the British Pharmacopœia, but the appended descriptive note is much more full than that of the British Pharmacopœia. The reasons for the introduction of this article into the Pharmacopœia are not known.

Bromide of ammonium, p. 83, is an important addition, and the process appears to be a very good one as an outline for any one who wants to make it. The last paragraph on the page is not clear—or at least is not understood by the writer—for, if no greater precision is attained than that indicated in the process, there will be more than two-tenths of a grain of moisture left in the salt, and then the seventeen grains of nitrate silver will decompose the whole of the bromide, and

the further addition of nitrate-of-silver solution will cause no cloud.

Purified chloride of ammonium, p. 84, is also a useful addition, but the process is defective in adding the water of ammonia to a hot solution of the chloride, and in continuing the heat before filtration. Upon the large scale, at least, this does not accomplish the object, and the preparation will not, in a large majority of instances, stand the test by tannic acid, as given in the paragraph of tests.

Iodide of ammonium is another important addition.

The article on valerianate of ammonia, p. 85, has been rewritten with no perceptible advantage; but the note of description and tests, which is far more important, and is deficient in not identifying the separated acid, is unchanged.

In the process for oxysulphuret of antimony, p. 88, 7th and 8th lines from the foot, the phraseology is changed decidedly for the better.

Under carbonic-acid water, p. 90, an important paragraph is added to prevent insidious contamination with copper and lead, though the tests given would detect these metals as well as others if present.

Under water of ammonia, p. 91, the phraseology is altered for the worse on the 15th and 17th lines from the top, since, if the phrase be grammatically construed, the "glass tube," and not the distant "two-pint bottle," is described as containing the water. Such points, however, would be surely hypercritical, except when they are the only changes, and changed from a better phraseology to a worse.

Creasote water, p. 94, should be filtered through a *wet* filter to prevent the passage of oily particles.

Under distilled water, p. 95, the new Pharmacopœia adheres to the phraseology of the old, where the direction is, to "distil two pints, using a tin or glass condenser, and throw them away." Query, what is to be thrown away? This peculiar phraseology was pointed out to the committee, so that it must be concluded that they consider it correct as it stands.

The processes for subcarbonate and subnitrate of bismuth, pp. 103, 104, are somewhat changed and much improved in several points.

The process for animal charcoal, p. 109, is amended materially by the direction, before omitted, to "heat it to redness, and, when cool, keep it in well-stopped bottles," but, unfortunately, this important amendment needs further amendment, for, unless the words "out of contact of air" be added after "heated to redness," the charcoal may be burned up.

The name of "Ceratum adipis, cerate of lard," is now changed to "Ceratum, cerate," p. 109. And Unguentum adipis, ointment of lard," to "Unguentum, ointment," p. 326. At the last revision, these were, with rather doubtful propriety, changed from simple cerate, and simple ointment, to lard cerate, and lard ointment. But now, apparently to get them into harmony with "Syrupus, syrup," and "Mel, honey," they are again changed, so that the adjective, or qualifying, or class name, stands by itself. But, as the other parallel class distinctions, such as decoction, infusion, solution, spirit, tincture, etc., could not with propriety be used in this way, the discord is still as great as ever. The physician, who follows the Pharmacopœia, but sends to a pharmacist who does not know it critically, may have his prescription returned to him as incomplete. The change seems altogether uncalled for, unnecessary, and unwarranted.

The class "Chartæ," comprising two articles, is new. All the blistering and mustard papers now commonly used are, so far as your reporter's information and inquiries go, untrustworthy, and, where such things fail, valuable time is often lost. The cantharides paper is taken, with slight modification, from the British Pharmacopœia; and the mustard paper is probably that of Mr. Crew, or something like it. If from these sources, and materially modified, the modifications may make them keep well, as the original preparations do not. At best they may be best classed with those "doubtful novelties of pharmaceutical science" which the Preface tells us the Pharmacopœia should not pander to.

The Pharmacopœia cannot be followed in keeping two out of the three collodions, p. 117, in "well-stopped," that is glass-stoppered bottles, unless an almost impossible degree of care be taken not to get the collodion upon the neck of the bottle or

stopper to glue the latter in. A cork, when glued in, can be dug out in pieces and a new one substituted; with glass this is more difficult.

The previous errors in the process for the confection of senna are properly corrected, and the formula and process are now unexceptionable.

The formula and process for digitalin are introduced with slight modification from the British Pharmacopœia.

In the officinal names of several of the alcoholic extracts, the characteristic word "alcoholic" is left off, as in those of aconite, arnica, colocynth, digitalis, etc., thus making the names harmonize with those of the watery extracts, while they are really equally alcoholic with those of belladonna, conium, and hyoscyamus, where the word alcoholic had to be retained to distinguish between the more feeble watery extract of the fresh plant and the stronger alcoholic extract of the dry plant. Even to physicians and pharmacists, who are pretty well educated in the materia medica, this distinction has not been fully learned and appreciated in the past, and, now that a new and serious element of confusion has been introduced, it will be fortunate if grave mistakes do not occur.

Extract of American hemp is introduced, and is, so far as the writer knows, entirely new to the professions of medicine and pharmacy. A single monograph, written by Dr. H. C. Wood, Jr., of Philadelphia, contains all the knowledge on the subject; and, adopting the principle laid down in the Preface, the new Pharmacopœia follows in the wake of this single beam of "advancing knowledge," to gather it up and hoard it for use.

The formula for compound extract of colocynth is very much improved by taking purified aloes and an increased proportion of cardamom, but is still defective in mixing the separate powders instead of combining them by heat so that the soap, resins, and aromatic, may unite and form a compound rather than a mixture.

The extract of jalap, p. 143, still contains the expensive, inert, useless, and very troublesome watery extract, which more than ten years ago was taken in boluses large enough and repeated often enough to determine its character, and

that by one of the members of the present committee. The committee seems persistently to refuse this as "advancing knowledge;" but in the parallel case of the extract of podophyllum, p. 146, gives a very much improved formula and process excluding this watery extract.

The extract of Calabar bean, p. 145, is an important addition, but the substance is taken in too coarse a powder, and the exhaustion is insufficient.

Under the important sub-head of fluid extracts, a model process of percolation is first given. At the last revision model processes were rejected, first, upon the ground that in a book of reference, like the Pharmacopœia, each article referred to should be found complete; and, again, as a more intimate knowledge of the characteristic peculiarities and differences in drugs was obtained by investigation and experience, it was considered that no model process could be equally applicable to any considerable number of substances. Increasing knowledge and experience seem to have justified these conclusions of the last committee, yet the present one has reversed the action.

The revision of 1860 contains 25 fluid extracts, all of which are retained in this revision except that of conium. Of the 24 retained, 10 contained sugar. This ingredient proved objectionable in practice, and the writer among others soon found that where sugar was desirable glycerin was far better, and these results were freely published, and glycerin was fully tried, though not always with the expected advantages. Nevertheless, wherever sugar had been considered indispensable, there seemed no doubt but that glycerin was better, and the writer everywhere advocated the substitution, but never its extension to other fluid extracts. Within the past two years, the practice of pharmacists and the usage by physicians both seem to indicate that, where glycerin is not absolutely necessary, it is objectionable. Such views are, however, not accepted by this committee, for, in following out their modification of Mr. Campbell's plan for the officinal fluid extracts, they have not only substituted glycerin for the sugar in the 10 old fluid extracts which contained sugar, but have introduced it into 7 of the remaining 14 old fluid extracts after ten years'

experience had proved it unnecessary, leaving now only 7 of the original 24 without it. Then the committee introduce 22 new fluid extracts, 17 of which contain glycerin, thus making a total of 46, of which the large proportion of 34 contain glycerin. This new officinal feature will not probably be generally followed and should not, and the Pharmacopœia will have to be satisfied with that degree of loyalty which adopts its now uniform strength for fluid extracts whereby each minim represents a grain of the drug from which it is made. Some other curious changes are unaccountably made in both old and new fluid extracts whose present value has been long established.

The process for tartrate of iron and potassa, p. 178, is not corrected, and it is therefore still impracticable.

Citrate of iron and strychnia, p. 179, is a new article of some importance, and the process seems to be a good one.

A new class of glycerites, p. 187, is introduced apparently from the British Pharmacopœia, since four of the five are found in that work. This may prove to be a useful class of preparations for external application.

In the formula for yellow oxide of mercury, there is an error which defeats the process, and yields oxychloride. The quantity of solution of potassa should be twenty-five troy ounces, instead of seventeen, p. 193.

Aconite liniment, p. 205, is also a useful addition, but it is in reality a fluid extract both in mode of preparation and in strength, and why it should be introduced here, as a liniment, it is difficult to understand, unless it be to secure it against internal administration. If this be the reason, it is not a good one, for the Pharmacopœia cannot wisely undertake to legislate against mistakes by erratic names.

The errors of directing purified chloroform in the chloroform liniment, p. 207, and in the solution of gutta-percha, p. 215, are still retained, though a commercial chloroform is provided for external uses.

The formula and process for soap liniment, p. 207, are reformed and very much improved.

An important alternative process is given for solution of acetate of ammonia, p. 208, which must prove to be a great advantage as well as a convenience, since it will always be

freshly made as dispensed. It might have been wisely substituted for the old process.

A solution of chloride of iron, p. 211, is introduced, which is but the first part of the old process for the tincture of the chloride of iron, and then this solution is directed, at p. 208, to be used in making the tincture. This is simply making two preparations out of one, and, if the intention be to keep the materials separate, and make the tincture as wanted, it is a mistake, because the older the tincture is the better, on account of the reactions which take place slowly for the production of an ether which is important to the preparation.

The process for solution of citrate of iron, p. 212, is rewritten, and materially improved.

The one-grain solution of sulphate of morphia is still retained, while an officinal formula for Magendie's solution is still refused. If local usages are to be provided for in simple solutions, both should be supplied. If confusion and mistakes are to be avoided, both should be excluded, and be left to magistral prescription.

The process for chloride of zinc, like that for tincture of chloride of iron, is divided into two, and a solution of chloride of zinc is introduced at p. 223.

A citrate of lithia is very properly introduced, and by a good formula.

The processes for the oleo-resins are all rewritten, and improved; and a new one, oleo-resin of fern, meaning male-fern, is introduced.

Under the sub-heading of pills, p. 241, the Pharmacopœia is made again to depart from the admirable precepts of its Preface, and to illustrate how different it is, and how much more easy, to know a thing to write it, and to know a thing to do it. It cannot be too often quoted that the Pharmacopœia "should gather up and hoard for use what has been determined to be positive improvement, without pandering to fashion, or to doubtful novelties in pharmaceutical science."

Now, it is stated here as a mandate of this highest authority in the nation, that "the practice of sugar-coating pills is approved in reference to pills which are expected to be slow in their operation, but is of doubtful propriety in regard to

those intended to act quickly, as the coating retards the solution of the pill-matter in the liquids of the stomach." When the Pharmacopœia thus goes half-way over to the wholesale pill-makers, the first question is, as to whether sugar-coating be a positive improvement which should be gathered up for use. If it be so, then the question of "pandering to fashion, or to doubtful novelties" in the drug-trade—for this is not pharmaceutical science in any sense—does not come up? If it be true that medicines commonly go into an empty stomach, and that when the organ is empty it is but a quiescent portion of the intestinal canal which would at once pass a bland, unirritating particle, like a sugar-coated pill, through the pylorus, the question of sugar-coating being a positive improvement must be considered as decided in the negative. But there is another aspect to this subject, which is of greater importance. Is the medical profession ready to hand over to the tender mercies of competing tradesmen another important class of medicinal agents, with the full knowledge that in so doing they must of necessity lose all check and control over it, and therefore must abandon all notions of precision and accuracy. In these cases we cannot afford to wait for evolution to determine the survival of the fittest, for the faithful manufacturer who may use the best materials and put on the most soluble coat with greatest skill cannot sell at the same price or profit as his less faithful competitor, nor can he spend so much upon agents and advertising; and, the landmarks of quality being all removed, the whole question is left open to that most precarious of all testimony, namely, individual judgment based upon casual observation.

Such changes as that made in the alums, the lowering of the specific gravity of chloroform to the trade standard, and this partial approval of sugar-coated pills, subject this committee to the charge of concession to the unsafe interests of trade in matters of vital importance.

The formulas for pills have all been rewritten with much care by a practised hand, without material change in proportion or dose, and are made to apply to small quantities applicable to the wants of dispensing pharmacists, so that they may always be comparatively fresh and soft. This, to a certain

extent, obviates the necessity of adding glycerin to the formulas, to keep the pills from becoming hard. The tone and tendency of these changes is quite in opposition to the indorsement of sugar-coated pills, and will go far to induce the dispensing pharmacist to make his pills for himself. And, if this be skilfully done, there is no necessity whatever for sugar-coating. It is to be regretted that this practised hand, which worked out these formulas, did not add the direction that pills should be kept in bottles.

The matter upon p. 249 of the pills, seems to be out of its proper alphabetical order, without any other discoverable reason than that the masses are not divided into pills as all the others are. This dislocation, however, renders these formulas liable to be lost when sought for by alphabetical order.

The processes for two of the resins are rewritten, with great improvement and advantage.

The British Pharmacopœia process, sometimes known as Redwood's process, for spirit of nitrous ether, is adopted instead of the old one. The writer has never tried this process, but feels confident that an error is involved in the use of sulphuric acid and copper. It is, however, much more certain that a grave error has been made by the committee in the quantity of stronger alcohol taken, and the quantity of the resulting product. Had the committee copied their authority more literally, they would have escaped the great blunder of making seven or eight pints of the spirit from "four troy ounces and a half" of nitric acid. These proportions yield a preparation of about one-half the strength it should be, and must be, in order to answer the requirements of their note of tests. The writer having made thousands of pounds of this preparation with great success by the old formula, and repeatedly upon the scale of the Pharmacopœia, is at a loss for any reason for this change in this important preparation.

In the formula for suppositories of lead and opium, the oil of theobroma is left out, p. 287.

Heat is still very mistakenly insisted upon in the process for syrup of iodide of iron, p. 291.

Tincture of aconite leaf is dismissed, though called for perhaps quite as often as many of the articles introduced,

while it must necessarily be kept by the pharmacist, to fill those prescriptions which call simply for tincture of aconite.

Notwithstanding all that has been written at home and abroad, the committee seem to be only one-quarter converted to the advantages of the dried, unripe fruit of conium over the leaf. They advance so far as to admit the fruit, and make the fluid extract from it; but still make the extract, alcoholic extract, p. 138, and the tincture, p. 307, from the leaf; and besides, introduce a bad new preparation, juice of conium, which they also make from the leaf. Why they refuse such authority as Dr. John Harley, of London, especially as it is supported by abundant testimony at home, your reporter cannot understand.

In the troches of bicarbonate of soda, nutmeg is found in the formula, but not in the process. Which is in error?

In a new preparation, ointment of cantharides, introduced at p. 328, is a curious instance of novelty. Two cerates are mixed, and called by the committee an ointment. How the mixing can change and reduce the consistence, as implied in the name, is difficult to understand.

The old defective process for acetate of zinc is abandoned, and a good process is adopted in its stead.

The tables usually found at the end of the preparations, giving a summary account of all the changes made, are increased in number by one; and six new tables of weights and measures have been added. These give the officinal and metrical systems, and their common and most useful relations to each other, and their approximate equivalent values. In giving the value of the gramme in grains, the later and more correct determinations are not accepted by the committee. The equivalent given by Gmelin, "Handbook," p. ix., from authorities of that date, is 15.44242 grains. This determination was subsequently corrected to 15.4346, and again to 15.4340 as given in the U. S. Dispensatory. But the value generally accepted at this time, as the result of greater precision in the weighings, is 15.4322 grains, as determined by U. S. authority in the Bureau of Hydrography in Washington. The new Pharmacopœia gives 15.434.

The convention of 1860 directed that the Index of the

Pharmacopœia should "have its names so marked for the quantity of the syllables that it may serve as a pronouncing vocabulary of the materia medica." This was well done by the former committee, and your reporter can attest the utility of such a standard for reference, to correct the many common errors of pronunciation against which this provision was made. It is to be regretted that the present committee did not allow this index to stand, even with its very few doubtful renderings. At the present revision, the index is merely accented, thus leaving the *c* and *ch* to be rendered either hard or soft though the *g* is marked, and leaving the vowels entirely unmarked for quantity.

In a retrospective view of the materia medica for the past decade, it will be seen that the number of articles proposed and used, and the voluminous and inconsistent testimony in regard to them, are unprecedented; and hence it must appear, to the most casual observer, that the work of the committee in selecting articles for admission was unusually difficult and laborious. This difficult work the committee has accomplished with a judgment so generally good that exceptional instances become the more conspicuous. As an instance of this exceptional character, they introduce the hypophosphites, now pretty well worn out, and pretty generally rejected, though still possibly entitled to the place; but reject pepsin, which stands so very much in need of a pharmacopœial description and tests.

Your reporter here gives up the disagreeable and tedious labor of having so much of this important national standard to object to. It is a work at which he hesitated and halted, and it never would have been undertaken but from a sense of paramount duty. He therefore begs a few words of personal explanation in concluding the disagreeable task.

Let no man infer from what has been here written that the writer places himself in an attitude of hostility to the United States Pharmacopœia; or that he in any degree withdraws any part of the influence he may be able to exert from earnestly supporting it. On the contrary, if he knows his own position in the matter, it is that of unchanged, honest, earnest fidelity to the National Standard, and unchanged disposition to work for its improvement.